University of Garyounis
Faculty of Engineering
Electrical and Electronic Dep.
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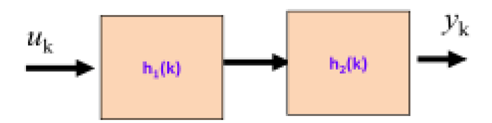
Spring 2010 - Final Exam
Linear System (EE 311)
Date: 29/6/2010 Time: 3 hrs
(Open Book Exam)

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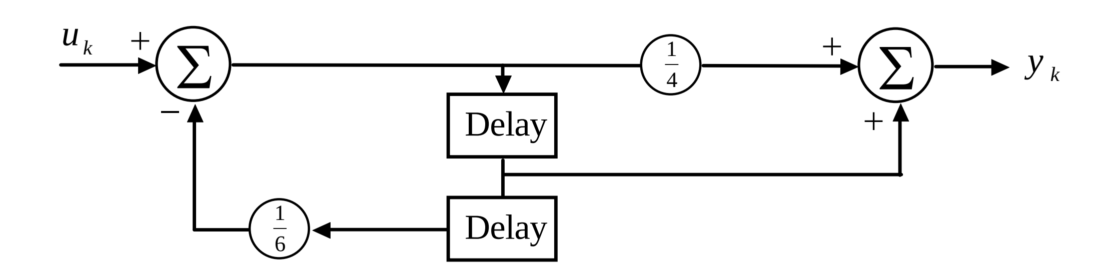
Answer all questions:

Q1 - Two cascaded systems with the impulse response functions

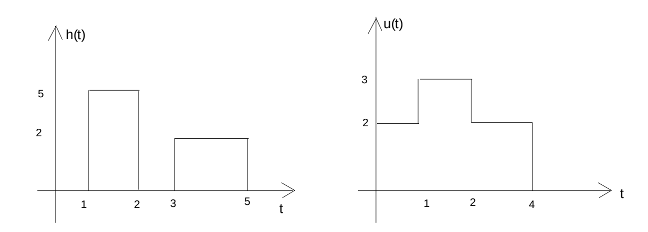
Q2 - Two cascaded systems with the impulse response functions $h_1(k)=(0.8)^{\mathbf{k}}$, $h_2(k)=(-0.8)^{\mathbf{k}}$, $k\geq0$. Find the output sequence y_k when the input to the first system is $u_k=0.4$, $k\geq0$.



Q3 – For what ranges of the parameter K will the system below be stable?



Q4 - When the input to a continuous-Time system $\delta(t)$ the output is the shown y(t) find the output of the same system to the given input signal u(t). [10]



Q5 - A continuous time system with the given impulse response.

$$H(S)=\frac{S^2+2S}{(S-3)(S+2)+g}$$

a) Find the range of g which makes the system stable.
b) Find h(t) when g = -5 and Re(S) < 3

Q6 - For the circuit shown below

a) Write a state variable description of the system.
b) Find the range of capacitance **c** which makes the system stable.
c) Find the impulse response of the system h(t) (Let **c** =0.1 F).

